

What is claimed is:

1. A hardened voyage data recorder, comprising:

(a) a removable memory subsystem;

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(b) a mounting base subsystem removably coupled to  
said memory subsystem; and

(c) electronic circuits for electronically  
10 accessing said memory subsystem, wherein said  
electronic circuits provide an ETHERNET access  
port for coupling said hardened voyage recorder  
to an ETHERNET network.

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2. A hardened voyage data recorder according to claim 1  
wherein said electronic circuits include firmware which  
provides TCP/IP access over ETHERNET to said circuits.

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3. A hardened voyage data recorder according to claim 2  
wherein said firmware includes web pages for configuring  
said hardened voyage data recorder.

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4. A hardened voyage data recorder according to claim 1  
wherein said electronic circuits are located in said  
mounting base subsystem.

5. A hardened voyage data recorder according to claim 1 wherein said mounting base subsystem includes at least one watertight cable connector.

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6. A hardened voyage data recorder according to claim 1 wherein said mounting base subsystem includes a first watertight cable connector for coupling with a power supply and a second cable connector for coupling with an  
10 ETHERNET network.

7. A hardened voyage data recorder according to claim 1  
15 wherein said electronic circuits accept both 110/220 VAC and 24 VDC power supplies.

8. A hardened voyage data recorder according to claim 1  
20 further comprising a quick release V-clamp, wherein said removable memory subsystem has a lower flange, said mounting base subsystem has an upper flange, and said quick release V-clamp engages said upper flange and said lower flange whereby said memory subsystem and said base  
25 subsystem are removably coupled to each other.

9. A hardened voyage data recorder according to claim 8  
wherein said quick release V-clamp has two quick release  
5 levers.

10. A hardened voyage data recorder according to claim 1  
wherein said removable memory subsystem includes non-  
10 volatile memory enclosed within a boiler.

11. A hardened voyage data recorder, comprising:

15 (a) a removable memory subsystem having a lower  
flange;

(b) a mounting base subsystem having an upper  
flange; and

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(c) a quick release V-clamp engaging said upper  
flange and said lower flange whereby said  
memory subsystem and said base subsystem are  
removably coupled to each other.

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12. A hardened voyage data recorder according to claim  
11 wherein said quick release V-clamp has two quick  
release levers.

13. A hardened voyage data recorder according to claim  
11 wherein said mounting base subsystem includes at least  
5 one watertight cable connector.

14. A hardened voyage data recorder according to claim  
11, wherein said mounting base subsystem includes a first  
10 watertight cable connector for coupling with a power  
supply and a second cable connector for coupling with a  
data source.

15 15. A hardened voyage data recorder according to claim  
11 wherein one of said upper flange and said lower flange  
has a groove adapted to receive an O-ring.

20 16. A hardened voyage data recorder according to claim  
11 wherein said upper flange has two concentric grooves,  
each adapted to receive an O-ring.

25 17. A hardened voyage data recorder according to claim  
16 further comprising one o-ring and one mesh gasket, one  
disposed in one of said two concentric grooves and the  
other disposed in the other of said two concentric  
grooves.

18. A hardened voyage data recorder, comprising:

5 (a) a removable memory subsystem; and

(b) a mounting base subsystem removably coupled to  
said memory subsystem, wherein said removable  
memory subsystem includes non-volatile memory  
10 enclosed within a boiler.

19. A hardened voyage data recorder according to claim  
18 wherein said mounting base subsystem includes at least  
15 one watertight cable connector.

20. A hardened voyage data recorder according to claim  
18 wherein said mounting base subsystem includes a first  
20 watertight cable connector for coupling with a power  
supply and a second cable connector for coupling with a  
data source.

21. A hardened voyage data recorder according to claim  
18 further comprising a quick release V-clamp, wherein  
5 said removable memory subsystem has a lower flange, said  
mounting base subsystem has an upper flange, and said  
quick release V-clamp engages said upper flange and said  
lower flange whereby said memory subsystem and said base  
subsystem are removably coupled to each other.

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22. A hardened voyage data recorder according to claim  
21, wherein said quick release V-clamp has two quick  
release levers.

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23. A hardened voyage data recorder according to claim  
21 wherein one of said upper flange and said lower flange  
has a groove adapted to receive an O-ring.

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24. A hardened voyage data recorder according to claim  
21 wherein said upper flange has two concentric grooves,  
each adapted to receive an O-ring.

25. A hardened voyage data recorder according to claim  
24 further comprising one o-ring and one mesh gasket, one  
5 disposed in one of said two concentric grooves and the  
other disposed in the other of said two concentric  
grooves.

10 26. A hardened voyage data recorder, comprising:

(a) a removable memory subsystem;

(b) a mounting base subsystem removably coupled to  
15 said memory subsystem; and

(c) at least one memory interface converter chip  
coupled to said removable memory subsystem.

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27. A hardened voyage data recorder according to claim  
26 wherein said mounting base subsystem includes at least  
one watertight cable connector.

28. A hardened voyage data recorder according to claim  
26 wherein said mounting base subsystem includes a first  
watertight cable connector for coupling with a power  
5 supply and a second cable connector for coupling with a  
data source.

29. A hardened voyage data recorder according to claim  
10 26 further comprising a quick release V-clamp, wherein  
said removable memory subsystem has a lower flange, said  
mounting base subsystem has an upper flange, and said  
quick release V-clamp engages said upper flange and said  
lower flange whereby said memory subsystem and said base  
15 subsystem are removably coupled to each other.

30. A hardened voyage data recorder according to claim  
29 wherein said quick release V-clamp has two quick  
20 release levers.

31. A hardened voyage data recorder according to claim  
29 wherein one of said upper flange and said lower flange  
25 has a groove adapted to receive an O-ring.



32. A hardened voyage data recorder according to claim 29 wherein said upper flange has two concentric grooves, each adapted to receive an O-ring.

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33. A hardened voyage data recorder according to claim 32 further comprising one o-ring and one mesh gasket, one disposed in one of said two concentric grooves and the  
10 other disposed in the other of said two concentric grooves.

34. A hardened voyage data recorder, comprising:

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(a) a removable memory subsystem, wherein said removable memory subsystem includes a stacked memory and a plurality of memory interface chips arranged for communication with a  
20 processor such that a large number of memory chips may be driven; and

(b) a mounting base subsystem removably coupled to said memory subsystem.

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35. A hardened voyage data recorder according to claim 34 wherein said mounting base subsystem includes at least one watertight cable connector.

36. A hardened voyage data recorder according to claim  
34 wherein said mounting base subsystem includes a first  
5 watertight cable connector for coupling with a power  
supply and a second cable connector for coupling with a  
data source.

10 37. A hardened voyage data recorder according to claim  
34 further comprising a quick release V-clamp, wherein  
said removable memory subsystem has a lower flange, said  
mounting base subsystem has an upper flange, and said  
quick release V-clamp engages said upper flange and said  
15 lower flange whereby said memory subsystem and said base  
subsystem are removably coupled to each other.

38. A hardened voyage data recorder according to claim  
20 37 wherein said quick release V-clamp has two quick  
release levers.

39. A hardened voyage data recorder according to claim  
25 37 wherein one of said upper flange and said lower flange  
has a groove adapted to receive an O-ring.

40. A hardened voyage data recorder according to claim  
37 wherein said upper flange has two concentric grooves,  
5 each adapted to receive an O-ring.

41. A hardened voyage data recorder according to claim  
40 further comprising one o-ring and one mesh gasket, one  
10 disposed in one of said two concentric grooves and the  
other disposed in the other of said two concentric  
grooves.

42. A process for fabricating a hardened voyage data  
15 recorder, comprising the steps of:

- (a) utilizing a removable memory subsystem;
- (b) removably coupling said memory subsystem to a  
20 mounting base subsystem; and
- (c) accessing said memory subsystem electronically  
utilizing electronic circuits, wherein said  
electronic circuits provide an ETHERNET access  
25 port for coupling said hardened voyage recorder  
to an ETHERNET network.

43. A process for fabricating a hardened voyage data recorder, comprising the steps of:

- 5 (a) utilizing a removable memory subsystem having a lower flange;
- (b) utilizing a mounting base subsystem having an upper flange; and
- 10 (c) removably coupling said memory subsystem and said base subsystem to each other utilizing a quick release V-clamp engaging said upper flange and said lower flange.

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44. A process for fabricating a hardened voyage data recorder, comprising the steps of:

- 20 (a) utilizing a removable memory subsystem; and
- (b) removably coupling a mounting base subsystem to said memory subsystem, wherein said removable memory subsystem includes non-volatile memory enclosed within a boiler.

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45. A process for fabricating a hardened voyage data recorder, comprising the steps of:

- 5           (a) utilizing a removable memory subsystem;
- (b) removably coupling a mounting base subsystem to  
              said memory subsystem; and
- 10           (c) coupling at least one memory interface  
              converter chip to said removable memory  
              subsystem.

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46. A process for fabricating a hardened voyage data recorder, comprising the steps of:

- 20           (a) utilizing a memory subsystem including a  
              stacked memory and a plurality of memory  
              interface chips arranged for communication with  
              a processor such that a large number of memory  
              chips may be driven; and
- 25           (b) removably coupling a mounting base subsystem to  
              said memory subsystem.